We Claim:

1. A method for electrically contacting a rear side of a semiconductor substrate when processing the semiconductor substrate, the method which comprises:

providing a semiconductor substrate having a substrate rear side and a substrate front side disposed opposite from the substrate rear side;

removing an insulating layer disposed on the substrate rear side; and

placing the semiconductor substrate with the substrate rear side on a substrate holder such that an electrically conductive contact layer formed of a semiconductor material is disposed between the semiconductor substrate and the substrate holder.

2. The method according to claim 1, which comprises providing the electrically conductive contact layer as a diffusion barrier against materials forming the substrate holder.

3. The method according to claim 1, which comprises providing the electrically conductive contact layer as a doped layer wherein the electrically conductive contact layer and the

semiconductor substrate are doped with a same type of charge carriers.

4. The method according to claim 1, which comprises forming a trench in the electrically conductive contact layer starting from a surface of the electrically conductive contact layer facing the semiconductor substrate.

5. The method according to claim 1, which comprises forming a mesa in a surface of the electrically conductive contact layer facing the semiconductor substrate.

6. The method according to claim 1, which comprises forming a hole in the electrically conductive contact layer such that the hole extends from a surface of the electrically conductive contact layer facing the semiconductor substrate to a further surface of the electrically conductive contact layer facing the substrate holder.

7. The method according to claim 1, which comprises:

forming a first trench in the electrically conductive contact layer starting from a surface of the electrically conductive contact layer facing the semiconductor substrate; and

forming a second trench in the electrically conductive contact layer starting from a surface of the electrically conductive contact layer facing the substrate holder.

8. The method according to claim 1, which comprises:

forming a first mesa in a surface of the electrically conductive contact layer facing the semiconductor substrate; and

forming a second mesa in a surface of the electrically conductive contact layer facing the substrate carrier.

9. The method according to claim 4, which comprises generating a given pressure in the trench, the given pressure in the trench being lower than a pressure at the substrate front side.

10. A method for electrically contacting a rear side of a semiconductor substrate when processing the semiconductor substrate, the method which comprises:

providing a semiconductor substrate having a substrate rear side and a substrate front side disposed opposite from the substrate rear side; and

placing the semiconductor substrate with the substrate rear side on a substrate holder such that an electrically conductive contact layer formed of a semiconductor material is disposed between the semiconductor substrate and the substrate holder for electrically contacting the substrate rear side when processing the semiconductor substrate.